

What is claimed is:

1 1. A production system including a production line being
2 a series of a plurality of pieces of production equipment each
3 of which has a parts supply unit, the production system
4 comprising:

5 an NC management apparatus that is connected with each
6 piece of the production equipment via a local-area network and
7 acquires therefrom NC data used for operating each piece of the
8 production equipment; and

9 a scheduling apparatus that generates a production
10 schedule and transmits the generated production schedule to the
11 NC management apparatus via the local-area network, wherein

12 the NC management apparatus generates, for each piece of
13 the production equipment, data that is required to perform
14 production according to the production schedule, obtains, for
15 each piece of the production equipment, differences between
16 current NC data that has been acquired the most recently and
17 the generated data, and outputs the obtained differences.

1 2. A production system including a production line being
2 a series of a plurality of pieces of production equipment each
3 of which has a parts supply unit, the production system
4 comprising:

5 a LAN port that conducts on-line communications with a
6 scheduling apparatus and each piece of the production equipment
7 via a local-area network;

8 a production schedule acquiring means for acquiring a

9 production schedule from the scheduling apparatus;

10 an NC data acquiring means for acquiring NC data used for
11 operating each piece of the production equipment; and

12 a difference obtaining means for obtaining, in terms of
13 each production parameter for each piece of the production
14 equipment, differences between the production schedule and
15 currently held NC data.

1 3. The production system of Claim 2, wherein

2 the production schedule is generated for each version
3 of each production item, each production schedule showing a
4 version of a production item,

5 the NC data acquiring means acquires NC data of a version,
6 and

7 the difference obtaining means obtains differences
8 between the production schedule and currently held NC data, in
9 terms of each production parameter of a version of the currently
10 held NC data.

1 4. The production system of Claim 3 including a plurality
2 of production lines each of which is used to mount parts onto
3 a circuit board, and

4 each production parameter includes a production line ID,
5 a production equipment ID, an effective date, a parts number
6 ID, and an update date.

1 5. The production system of Claim 4 further comprising

2 a display means that displays the differences obtained by the
3 difference obtaining means.

1 6. The production system of Claim 5, wherein
2 the NC data contains an NC program showing a parts mounting
3 position, a parts arrangement program, a board program, and a
4 parts library showing conditions for mounting parts.

1 7. An NC data management apparatus for use in a production
2 line being a series of a plurality of pieces of production
3 equipment each of which has a parts supply unit, the NC data
4 management apparatus comprising:

5 an NC data acquiring means for acquiring NC data used for
6 operating each piece of the production equipment;

7 a means for acquiring a parts library used by each piece
8 of the production equipment; and

9 a means for automatically checking on an NC data
10 preparation status of each piece of the production equipment
11 in each line by referring to the acquired NC data and the parts
12 library and a production preparation table including production
13 plan information of each line.

1 8. The NC data management apparatus of Claim 7, wherein
2 the automatic checking means instructs to output a warning when
3 the automatic checking means judges that the NC data preparation
4 status is not satisfactory.

1 9. The NC data management apparatus of Claim 8, wherein
2 the acquired NC data is managed in a hierarchy composed
3 of a plurality of layers of at least a line, equipment, data
4 type, and a program version so that the acquired NC data is stringed
5 between the plurality of layers with parameters corresponding
6 to the plurality of layers.

1 10. An NC data management method for use in a production
2 system including a production line being a series of a plurality
3 of pieces of production equipment each of which has a parts supply
4 unit, the NC data management method comprising:

5 a production schedule acquiring step for acquiring a
6 production schedule from a scheduling apparatus;

7 an NC data acquiring step for acquiring NC data used for
8 operating each piece of the production equipment; and

9 a difference obtaining step for obtaining, in terms of
10 each production parameter for each piece of the production
11 equipment, differences between the production schedule and
12 currently held NC data.

1 11. The NC data management method of Claim 10, wherein
2 the production schedule is generated for each version
3 of each production item, each production schedule showing a
4 version of a production item,

5 the NC data acquiring step acquires NC data of a version,
6 and

7 the difference obtaining step obtains differences between

8 the production schedule and currently held NC data, in terms
9 of each production parameter of a version of the currently held
10 NC data.

1 12. The NC data management method of Claim 11, wherein
2 the production line is used to mount parts onto a circuit
3 board, and
4 each production parameter includes a production line ID,
5 a production equipment ID, an effective date, a parts number
6 ID, and an update date.

1 13. The NC data management method of Claim 12 further
2 comprising a display step that displays the differences obtained
3 by the difference obtaining step.

1 14. The NC data management method of Claim 13, wherein
2 the NC data contains an NC program showing a parts mounting
3 position, a parts arrangement program, a board program, and a
4 parts library showing conditions for mounting parts.

1 15. An NC data management method for use in a production
2 line being a series of a plurality of pieces of production
3 equipment each of which has a parts supply unit, the NC data
4 management method comprising:

5 an NC data acquiring step for acquiring NC data used for
6 operating each piece of the production equipment;

7 a step for acquiring a parts library used by each piece

8 of the production equipment; and
9 a step for automatically checking on an NC data preparation
10 status of each piece of the production equipment in each line
11 by referring to the acquired NC data and the parts library and
12 a production preparation table including production plan
13 information of each line.

1 16. The NC data management method of Claim 15, wherein
2 the automatic checking step instructs to output a warning
3 when the automatic checking step judges that the NC data
4 preparation status is not satisfactory.

1 17. The NC data management method of Claim 16, wherein
2 the acquired NC data is managed in a hierarchy composed
3 of a plurality of layers of at least a line, equipment, data
4 type, and a program version so that the acquired NC data is stringed
5 between the plurality of layers with parameters corresponding
6 to the plurality of layers.